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THE STUDENT AND CAMPUS CLIMATES OF LEARNING. NEW DIMENSIONS IN HIGHER EDUCATION, NUMBER 18.
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CURRENT BELIEFS ABOUT THE EXTENT OF THE INFLUENCE OF COLLEGE EXPERIENCE WERE SURVEYED BY A REVIEW OF REPORTED RESEARCH. THE PRINCIPAL CONCLUSIONS FORMULATED BY THE AUTHOR FROM THE LITERATURE STUDIED WERE (1) THE OUTCOME OF COLLEGE EDUCATION IS LIKELY TO BE A COMPROMISE BETWEEN THE CHARACTERISTICS OF ENTERING FRESHMEN AND THE IDEALS OF LIBERAL EDUCATION, (2) WHILE THE IMPACT OF THE COLLEGE EXPERIENCE ON AN INDIVIDUAL STUDENT IS NOT LIKELY TO BE LARGE, HIGHER EDUCATION DOES EXERT A PROFOUND INFLUENCE ON AMERICAN LIFE, (3) CHANGES THAT OCCUR IN STUDENTS DURING THE COLLEGE YEARS REFLECT THE NATIONAL OR INTERNATIONAL ETHOS, AND THE ATTITUDES AND VALUES WITH WHICH STUDENTS LEAVE COLLEGE TEND TO HAVE CONSIDERABLE PERSISTENCE, (4) CURRENT STUDENTS MANIFEST TRENDS IN THE DIRECTION OF INTERDISCIPLINARY STUDIES, UNITY OF SCHOLARSHIP AS OPPOSED TO SPECIALIZATION, AND CONCERN WITH MORAL AND ETHICAL ISSUES, (5) STUDENTS ARE SWAYED MORE BY FELLOW STUDENTS THAN BY ANY OTHER FORCE, (6) ALTHOUGH, STUDENT SOCIETY AND CULTURE ARE THE MOST IMPORTANT COLLEGE INFLUENCE, THE MOST IMPORTANT DETERMINANTS OF THE OUTCOME OF COLLEGE EXPERIENCE ARE THE CHARACTERISTICS OF THE ENTERING STUDENT, AND (7) A REVIVAL OF INTEREST IN EXPERIMENTAL COLLEGES AND PROGRAMS IS STIMULATING NEW EFFORTS TO EXPLORE WAYS TO ENSURE CLOSE RELATIONS BETWEEN STUDENTS AND FACULTY THAT CAN, PERHAPS, MAKE THE INFLUENCE OF THE COLLEGE MORE PERTINENT AND SIGNIFICANT. (AL)

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in Higher Education

Number 18

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NEW DIMENSIONS
IN HIGHER EDUCATION

Number 18

THE STUDENT AND CAMPUS CLIMATES OF LEARNING

by Mervin B. Freedman

Everett H. Hopkins, Editor

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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Mervin Freedman was graduated from New York City College in 1940. After spending four years in the Army in World War II, he attended graduate school at the University of California in Berkeley, receiving his Ph. D. in Psychology in 1950.

Dr. Freedman has taught and carried out research at the University of California, Berkeley, Vassar College, Stanford University, and San Francisco State College. In addition he has been a Fellow at the Center for Advanced Study in the Behavioral Science and a Fulbright Research Scholar at the University of Oslo. He is now Chairman of the Department of Psychology at San Francisco State College.

Studies of college students and higher education have been Dr. Freedman's chief research interest since 1953. He is the author of 55 articles and chapters in books and four monographs. Most of these publications are concerned with higher education. He is the author of The College Experience, which will be published in the spring of 1967 by Jossey-Bass, Inc., San Francisco.

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FOREWORD

(If and when this manuscript is published for general distribution, the Editor will gladly prepare an appropriate Foreword for the wider audience.)

HIGHLIGHTS

This monograph addresses a number of important issues concerned with characteristics of students, personality and intellectual development during the college years, and the influences exerted by student culture and society on learning and academic processes. Its principal findings are:

1. The outcome of college education is likely to be a compromise between the characteristics of entering freshmen and the ideals of liberal education. Compared with freshmen, seniors display greater knowledge of their cultural heritage, more cultivated tastes and interests, and increased relativism of outlook. They are less conventional, less authoritarian, and less stereotyped in their thinking. While the impact of the college experience on an individual student is not likely to be large, higher education does exert a profound influence on American life. Large scale social events or social movements are based on slight shifts of attitude or opinion in individuals.

2. Changes that occur in students during the college years reflect the national or international ethos, and the attitudes and values with which students leave college tend to have considerable persistence.

3. Current students manifest trends in the direction of inter-disciplinary studies, unity of scholarship as opposed to specialization, and concern with moral and ethical issues.

4. Students are swayed more by fellow students than by any other force. The scholastic and academic goals and processes of colleges are in large measure transmitted to incoming students or mediated for them by the predominant student culture. Student society and culture are the most important college influence, but the most important determinant of the outcome of college experience, however, is the characteristics of the entering student.

5. There is a revival of interest in experimental colleges and programs. These institutions reflect a desire on the part of educators to capture some of the educational potential of small colleges without yielding the undoubted virtue of large size. By such programs perhaps the influence of the college can be made more pertinent and significant.

I. INTRODUCTION*

When members of college faculties discuss the outcome of college attendance, Philip Jacob's book, Changing Values in College,[1] is likely to be the work that is most frequently cited. By and large Jacob assembles an impressive array of evidence which demonstrates that most American colleges have little effect on the attitudes and values of students. Except for a few institutions, primarily small private liberal arts colleges, which exert considerable influence on students, the chief result of college is that students become more like one another.

> The main overall effect of higher education upon student values is to bring about general acceptance of a body of standards and attitudes characteristic of college-bred men and women in the American community. There is more homogeneity and greater consistency of value among students at the end of their four years than when they began. Fewer seniors espouse beliefs which deviate from the going standards than do freshmen.[2]

Jacob is discussing changes in attitudes and values, but among college faculties his gloomy view of the effects of college would hold as well for more strictly cognitive or intellective aspects of the development of students. Few faculty members would argue that profound intellectual changes occur among large numbers of students. This view of things is, of course, very much at variance with what the bulletins and catalogues of liberal arts colleges say they will do to and for students. These publications abound in statements to the effect that attendance at X or Y college will result in "the ability to think more clearly or more logically, greater independence in judgment, less prejudice in thinking, greater self-awareness," and the like.

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*The author is grateful to Dr. Roger Cummings of San Francisco State College for a critical reading of the manuscript and to Mr. Rey Carr and Mr. Tupper Pettit of San Francisco State College for aid in assembling and interpreting the bibliography.

Like intellectuals in general, most college faculty members feel powerless to influence American society in important ways, and they feel generally alienated from the mainstream of American life. Except for a few figures of eminence on college faculties who are consulted by the Federal Government and except for the occasional student whose life is manifestly altered by his educational experience, rarely do faculty members see some direct connection between their efforts and consequential individual or social effects.[3] So it is that they find Jacob's findings to be congruent with their outlook.

In Changing Values in College Jacob cites considerable empirical evidence based on researches that were carried out prior to

1957 to buttress his views. And various of the more recent researches on personality change in the college years arrive at similar conclusions. In evaluating the outcome of college experience, the Center for Research and Development in Higher Education of the University of California at Berkeley places greater emphasis on the characteristics of the entering freshman than on the influence of the college.[4] Plant[5] demonstrates that high school youth who aspire to college but who do not attend college undergo personality changes that are similar to those which occur among high school graduates who go on to college (although "the collegiate experience seems to facilitate this development"). Freedman, and Sanford, and Webster, Freedman and Heist[6] delineate various changes that take place in students as they pass through college. In The American College, nevertheless, Sanford's tone is hardly that of complacence with the outcomes of higher education in the United States. The evidence seems to be that college experience does not exert a profound influence on the great majority of students.

American higher education tends to be a mass phenomenon, unlike the situation in many parts of the world where university attendance is reserved for a social or intellectual elite. In some American states now more than 50 percent of the high school graduates matriculate at a college (although a goodly proportion will not persist long enough to receive a degree). May we then simply conclude that for most of these students college attendance serves as a preparation for a profession or vocation of some kind and as an "initiation rite" into the upper middle class? "All of the above metaphors can perhaps be subsumed by the anthropological notion that college is an initiation rite for separating the upper middle from the lower middle class . . . ."[7] And except for a few colleges which exert appreciable influence on students and except for the small minority of students at other colleges who are deeply affected by their education, does this mean that the goals of liberal education go unrealized? This is a profound theoretical point but also a profound practical matter for most college faculty members. Consider a faculty member who is teaching at an institution which is not one of the few "potent" colleges described by Jacob--a large state university, for example. Except for his graduate students and an occasional undergraduate, is he to feel that he is doing little as a teacher except to contribute to the vocational and professional training of his students and to their social advancement? Do such considerations exhaust his contributions to society? Answers to such questions call for consideration of the relationships between individual and social change.

II. THE COLLEGE AND SOCIAL CHANGE

The outcome of college education is likely to be a compromise between the characteristics of entering freshmen and the ideals of liberal education. Many or most freshmen are changed by the time of graduation, but not a great deal changed. Educators and liberal critics of American higher education are bothered by the small amount of change that takes place in most students. They see this as evidence for the ineffectiveness of American education. This reaction is a faulty perception of the way in which social change takes place. The key to social change is this: in a dynamic system slight changes in individuals can lead to profound differences in outcome; massive social change is compounded out of slight shifts of attitude, belief, or behavior among individuals.

Maruyama[8] has delineated the processes by which such social change occurs. He describes systems in which "mutual causal effects are deviation-amplifying . . . the deviation-amplifying system has mutual positive feedbacks between the elements in it." The "second cybernetics," Maruyama's term for deviation-amplifying aspects of mutual causal relationships as opposed to self-regulating and equilibrating aspects of mutual causal relationships, may be used to explain or account for social change. An initial "kick" introduces an element of "inhomogeneity" into a system which is in a state of equipoise: "the deviation-amplifying mutual positive feedbacks take over the process, and the resulting development will be disproportionately large as compared with the initial kick." Changes that are introduced as a consequence of higher education, slight though they may be in individuals, can provide such an initial "kick," that is, if they are introduced into the personalities of large numbers of students.

Large-scale social events and social movements are based on slight shifts of attitude or opinion in individuals, on slight changes in balance among various structures in the personality. Consider the question of how it has come about that a city like Atlanta, Georgia, has integrated public facilities in recent years with relatively little public difficulty. Surely, as various public opinion polls show, this is not the result of any large-scale change in outlook among individuals. The majority of the white citizens of Atlanta would prefer that the old ways of segregation be maintained. They do not like Negroes any better now than they did ten years ago, and they do not care to share public life with them. What has changed is the vehemence with which such views are held. A white citizen of Atlanta will now accept, albeit grudgingly, a condition that he would have forcibly resisted some years ago.

So it is that higher education may exert a profound influence on American life. Liberal education affects some individuals appreciably and "rubs off" on many thousands more, and these changes in individuals ramify throughout American society and culture. The proportions of youth who attend college, moreover, are increasing at a considerable rate.[9] We may, therefore, presume that the social consequences of college attendance will be greatly magnified.

In Stability and Change in Human Characteristics, Benjamin S. Bloom[10] demonstrates that most personality and intellectual characteristics are laid down in infancy and early childhood and that they are extremely resistant to change after those periods--even in primary school years, in fact. For example, from ages 8 to 17 the most radical change in environment produces an average gain of but .4 I.Q. points per year--a difference of 4 I.Q. points in 10 years. The midpoint on the scale of development of characteristics like intelligence, academic achievement, and aggression comes before age 5. For Bettelheim[11] this book is evidence that significant change in behavior and personality cannot take place in the school.

This point of view overlooks the social effects of small changes in individuals. A net gain of four I.Q. points is not likely to make a discernible difference in the life of one person. An average gain of four I.Q. points in hundreds of thousands of individuals may be of considerable social consequence. The process of biological evolution rests on such a basis--the emergence of minute physical and physiological changes that make it easier for the individual organism and the species to survive and to prosper. Similarly social and cultural change--for better or for worse--rests on parallel minute shifts of attitude and personality characteristics.

Although I stress the social and cultural consequences of the introduction of small changes into the personality and into the intellect of students, I do not suggest that educators set their sights on small changes in students as their prime educational goals. Colleges and universities have made important contributions to American society and culture, but the crucial test of their value lies ahead. Enormous effort and wisdom will be required simply to prevent the world's being blown up. The task of making viable communities out of big cities is hardly less formidable. One can easily compile a list of problems and social issues of almost equal weight and complexity. With each passing year larger numbers of American youth will be matriculating in college. Such is the magnitude of current individual and social problems that they can be adequately met only if the impact of college experience on the individual student be sharper and deeper than has been customary heretofore.

III. THE STUDENT AND CLIMATES OF LEARNING

Certain it is that American higher education is a technical success. Various critics of American intellectual life may argue that mass culture, widespread access to college, and the like have prevented the emergence in the United States of intellectual or artistic giants of the order of Whitehead, Freud, Einstein, Picasso, or Schoenberg. This may be so, but nevertheless American technological development surpasses by far that of any other society. And in large measure this remarkable technical proficiency rests on the activities of American colleges and universities.

> The university is not only a research center, but also the place that trains the men who do the research wherever it is located. Of the highly trained men "produced" by the university, some remain in its own laboratories; but others in increasing number go out to staff the rapidly growing research facilities of industry and government.[12]

As other countries and societies, for example, those of Europe, become more industrialized, their universities and higher educational systems increasingly resemble their American counterparts.

Were technical, vocational, or professional proficiency or knowledge of the content of a field or discipline the only goal or concern of American higher education, empirical evaluation of the influence of college experience would be a simple matter. There is, for example, little interest in research involving achievement tests in higher education. Almost universally, when achievement tests are administered before and after a course, they show significant gains in knowledge and information. And while the issue of the effectiveness of a college in producing alumni who go on to attain professional or graduate degrees has interested some research workers, attention has not been centered so much on amount or kind of productivity as on the processes in the student or in the institution that influence productivity. Empirical studies of college students have concentrated for the most part on matters other than intellectual, cognitive, technical, or professional.

Researches into the impact of the college on the student have been concerned in the main with the personality changes and with the changes in attitude and value that occur during the college years. In the last few decades psychiatrists, psychoanalysts, and psychologists have produced a considerable body of literature that is concerned with personality development in college.[13] Sociologists and psychologists have likewise illumined the changes in attitudes and values that occur among students as they progress through college.[14] No comparable body of research literature that is concerned with intellectual and cognitive change is available.

Just what happens to students intellectually or cognitively as they progress through college, aside from the content of various fields of knowledge that they may absorb? As we shall see, some systematic empirical information that bears on this question may be found, but the pickings are slim indeed. Consider the vast amount of attention that experimental psychologists have devoted to researches on human learning. When a college faculty member inquires as to what findings based on these researches will be of value to him as he faces a class, the answer, unfortunately, is a flat "nothing." The result of laboratory explorations of learning which involve careful control of conditions so that one or several variables may be systematically regulated do not hold for "real life" academic or classroom situations, where influences that have been ruled out of the laboratory situation confound the issue and the outcome. Or consider the tremendous interest in cognitive and intellectual development among children on the part of psychologists in recent years.[15] No comparable research attention to the college may be found. Are we to conclude that cognitive and intellectual development ceases after about age 16 except that people acquire additional information or content? It is difficult to conceive of an educator who would say "yes." Yet the dearth of research on these matters suggests that implicitly such assumptions are held by many research workers and by many educators.

By the foregoing discourse I do not mean to suggest that intellectual and cognitive development should be considered to be independent of personality development or of changes in attitudes and values. People function as wholes, not as aggregates of independent traits or discrete characteristics. So it is that cognitive development, changes in reasoning, memory, or judgment, for example, influence personality development and attitudes and values, and in turn cognitive development is influenced by these processes. In this fashion I conceive of the total impact of the college on the student in terms of personality change. By "personality" I mean what a person means when he says "I." I refer to the whole person, the individual in his entirety. Development in personality then includes changes in intellectual abilities and in thinking; changes in opinions, beliefs, and values, changes in what is often called character; and changes in internal psychological processes, for example, emotional stability versus instability, mechanisms of defense, and attitudes toward oneself and other people.

A model designed to assess the impact of college on the student requires evaluation of the state of the student at the time of college entrance, and evaluation of his state at one or several later points in time, for example, at graduation time. One may determine the effectiveness of an educational institution by assessing the degree to which its "products" resemble the stated educational goals of the institution.[16] More difficult of assessment are the processes and mechanisms by which changes in students come about. To what extent are such changes the result of the influence of other students, of faculty members, of courses, and the like? Few researches have come to grips systematically with such questions.

Most researches concerned with student development in college have been static rather than dynamic. They have concentrated for the most part on comparisons of personality characteristics at two points in time. More complex and dynamic kinds of analysis of the workings of institutions and the functioning of individuals within them have not been applied to colleges and universities. I refer to such models that have been variously termed "systems theory," or "organizational theory," or the like.[17] Systems theory provides a series of concepts which enables research workers to discriminate functionally significant parts of the ecological fields in which diverse groups and individuals operate. According to Emery and Trist,[18] the main features of an institution or enterprise as a socio-technical system are: the technological component, structures of work relationship and occupational roles, the enterprise as an internally differentiated entity, and the enterprise and its external environment. The individual in the enterprise or institution may be studied systematically in accord with concepts having to do with relationships between him and his tasks and between him and the processes of the wider enterprise, concepts which attend to the interplay of social, psychological, and technological forces. In accord with systems theory a college or university may be conceived of as a subsystem of the wider society. It is open to this wider society, is influenced by it, and influences it in turn. This college or university system is composed of subsystems or interdependent parts--student or faculty society, for example. These subsystems influence one another and are influenced by the larger systems of which they are a part. And in turn they influence these larger systems. The individual is a system within larger systems, of course.

IV. PERSONALITY CHANGE IN STUDENTS AND THE NATIONAL ETHOS

Analysis of data in accord with systems theory has the advantage of suggesting relationships that may often otherwise be overlooked. Relationships between the kind of changes that take place in students during the college years and events at large on the national or international scene are rarely considered. Yet the evidence is that these relationships are intimate indeed. In the late 1950's I[19] administered the California _E_ and _F_ scales[20] to alumnae of Vassar College of various eras going back as far as the class of 1904. Substantial differences emerged among the alumnae groups, even among groups of adjacent decades which were not far apart in age. The Class of 1904, for example, is higher on the _E_ scale than the Class of 1914, at the .01 level of significance. On the _F_ scale the alumnae of the Classes 1921-24 are significantly higher than the Classes 1929-35. How do we account for the fact that alumnae of some classes and decades differ widely from others in authoritarian and ethnocentric tendency? My researches ruled out chronological age as a cogent explanatory factor. "Why should women averaging 74 years at the time of testing respond differently from women who are 66 on the average, or why should women of 47 at the time of testing differ from those who are 43?" I likewise eliminated differential childhood experiences as an explanation. Rather I looked to the college years for understanding of these matters.

> In short, I consider experiences of the college years to be a major source of the variations in attitudes by decade which we observe. Increasing liberalization of social outlook in American culture during the years of this century has in general been reflected in comparable changes in college students. And these changes have apparently persisted after college.

Moreover,

> the tenor of the times at which the alumnae were in college is intimately related to the attitudes they now display . . . . The above comparisons and the fact that the classes of 1940-43 have the lowest E scale scores of any group would seem to reflect the attitudes of the years just prior to and during World War II in the United States: optimistic views of man's potential and of post-war society, fervent internationalism, alertness to the possibility and dangers of dictatorship or authoritarian rule, and the like.

Similarly it is likely that the views and behavior of current students may to a considerable extent be regarded as reflections of functions of certain large-scale trends in American life.[21] Consider the matter of the very high proportion of American youth who attend college as compared to other countries of the Western world. To some extent, of course, this phenomenon is a facet of the American democratic ethos. But to a considerable degree it stems from economic considerations. In an increasingly affluent, mechanized, and automated society there is little room for youth in the labor force. College attendance and unemployment rolls are linked most closely.

The military draft provides another example of the intimate association between events on the national scene and the behavior of students. The ranks of graduate schools have been swelled by students who wish to avoid the draft by continuing their schooling. Undoubtedly more students would leave college without receiving a degree, were they not faced by the prospects of being drafted. A few years ago the custom of withdrawing from school temporarily to travel, or to work, or just to "hack around" for a while seemed to be spreading quite rapidly among students. With reference to this phenomenon the writer had occasion to say,

> The concept of self-development as a major goal of life will be a tremendous spur to liberal education in the classic sense. An affluent society in which the labor of young people is not needed will mean that they will be allowed longer time before committing themselves to a profession or comparable activity. Young adults will come to resemble the young men of the upper classes in the 19th century who were not expected to do much of anything before they were thirty, except travel around and meditate and perhaps sow some wild oats. Basil Bansom in Henry James's The Bostonians is a good example of such a young man.[22]

The draft makes this a dubious prophecy, indeed.

In the years 1964-66 student activism has received more attention in scholarly writings and in the popular press than any other aspect of academic life. The Free Speech Movement in Berkeley has been resoundingly denounced, highly praised, and impartially analyzed. Few critics of student activism have had the benefit of empirical data that might serve to sharpen the accuracy of their observations. Such writings have, therefore, resembled projective techniques. Critics are free to see in such student movements whatever it is that they wish to see. An exception is the work of Heist.[23] Heist used questionnaire and interview data to compare students who were active in the Free Speech Movement at Berkeley with randomly selected comparison groups. Results for the activist students suggest "a higher level of cultural sophistication, a greater release from the institutional influences of the past, and a greater openness and readiness to explore the world of knowledge and ideas." When students in the Free Speech Movement are categorized by degree of their intellectual disposition "we find almost 70 percent in the top three categories and none in the bottom three." The cumulative grade point averages of the students in the Free Speech Movement were above the university average.

It is difficult to assess the educational importance of programs of student activism like the Free Speech Movement in Berkeley. Like many of the fashions that come and go quickly across the American scene, student activism, at least of the very direct Berkeley kind, seems to be dying out. Yet this may be the result of greater sensitivity to students and their needs on the part of faculty members and administrators. The Academic Senate of the

University of California at Berkeley, for example, is engaged at present in a massive study of the University and its workings.[24] Student activists have comprised only a small proportion of American college students, but it is likely that their efforts have resulted in valuable educational ferment and reform. I have ventured to express the view that the increasing disposition in the American academic world to delegate power and responsibility to students is linked to profound changes in authority in American life.[25]

Certain anomic trends in American culture and society are reflected in the behavior of students. Mayhew[26] and Keniston[27] have affixed a clear but sympathetic gaze upon such students. Keniston reports that many young men and women from privileged homes reject the prevailing values of American society. These alienated youth prefer to remain in a state that might be described as late adolescence. They do not care to make the effort to struggle with the complex demands of modern technological society. Fiedler[28] views these alienated youth somewhat less sympathetically:

> But what the students were protesting in large part, I have come to believe, was the very notion of man which the universities sought to impose upon them: that bourgeois-Protestant version of Humanism, with its view of man as justified by rationality, work, duty, vocation, maturity, success; and its concomitant understanding of childhood and adolescence as a temporarily privileged time of preparation for assuming those burdens. The new irrationalists, however, are prepared to advocate prolonging adolescence to the grave, and are ready to dispense with school as an outlived excuse for leisure.

The "drug" societies that have sprung up on the peripheries of various cosmopolitan universities reflect these alienated and anomic dispositions. Many of the constituents of these societies are drop-outs. Concerning these devotees of drug and psychedelic experience, Freedman and Powelson[29] say,

> The interest of many students in drug experience may not be dismissed simply as a sign of delinquency, rebelliousness, or psychological pathology. It represents a search for a new way of life. It indicates needs and desires that American society and education do not now meet or fill. There is a quality of naivete in this quest by students. Wholeness, joy, wisdom, or love are not likely to emerge from a few hours that are spent under the influence of a chemical. The interest in drug experience informs us, however, that American society and education are doing little to contribute to the richness of life that students sense can be theirs.

Student activism and unrest, drugs, and the draft are very visible phenomena. One may trace with some clarity of detail the ways in which students are influenced by such large-scale societal trends and the ways in which they in turn influence such events. It is likely, however, that students and the academic world are being influenced as well by other profound national and international forces which are not nearly so evident. Sachs,[30] for example, points out how it was that certain qualities of the ethos of the Roman Empire, certain attitudes toward the human body and the use of tools, delayed the beginnings of a machine age in that period, even though the requisite knowledge and skills had been evolved by the Romans and their cultural predecessors. Moore[31] and Ratoosh[32] raise similar questions concerning lacunae or scotomata in our intellectual world. In 1962 Clark described "the triumph of vocationalism." "In the battle of student subcultures, the vocational tends toward dominance, growing stronger at the expense of the collegiate and the academic . . . ."[33] Clark was describing the collegiate scene of the 1950's. At the Berkeley campus of the University of California the proportion of undergraduate men enrolled in the College of Letters and Science was 58 percent in 1964 as compared to 48 percent in 1959.[34] Men majoring in history increased from 6 to 11 percent, in political science from 12 to 15 percent, in economics from 6 to 8 percent, in anthropology from 1.5 to 2.9 percent. In the same period the proportion of men in engineering decreased from 24 to 17 percent, in physics from 10 to 6 percent, in physical education from 2.4 percent to .4 percent, and in geology from 2.3 percent to .8 percent. Women display comparable trends when enrollments in 1964 are compared with those in 1959, although the changes are greater for men. The enrollment of women in the College of Letters and Science increased 5.7 percent in this period. Students at Stanford display similar swings in major field of study. At Stanford, for example, the department that now has the largest number of undergraduate majors is history, even though men outnumber women about two to one. Nichols[35] discerns comparable trends among National Merit Scholars: "the interest of able students in physical sciences and engineering has been decreasing . . . and . . . interest in the social sciences has been correspondingly increasing."

It appears that certain forces have been operating on students in the 1960's so as to reverse the increasing tendencies to vocationalism that Clark foresaw. Specialized knowledge, what Whitehead[36] calls "expert knowledge in some specialized direction," is hardly likely to disappear at the undergraduate level. Nevertheless, students are displaying increasing interest in interdisciplinary studies and in major fields of broad scope, the humanities and social sciences, for example. I suggest that these trends presage a profound revision of scholarship and ways of thought. Students are trying to introduce a measure of unity into their intellects, their personalities, and their lives. They are attempting to counter the 19th-century German pattern of scholarship, the fragmentation of knowledge into separate and finite fields of study--each to be pursued as if it were a self-contained universe. According to Sanford,[37] this "neglect of generalist methods is at the heart of both our human and our educational problems."

Students are attempting to return to a more comprehensive view of man and his knowledge, the synoptic view of 18th-century England or 15th-century Italy. To Leonardo the artistic and the scientific perception and the artistic and the scientific action were one and the same. Toynbee[38] says:

> I feel confident that the tradition of the past is also "the wave of the future." We are now moving into a chapter of human history in which our choice is going to be, not between a whole world and a shredded-up world, but between one world and no world . . . . I believe that in the 21st century, human life is going to be a unity again in all its aspects and activities. I believe that, in the field of religion, sectarianism is going to be subordinated to ecumenicalism, that in the field of politics, nationalism is going to be subordinated to world government; and that in the field of study, specialization is going to be subordinated to a comprehensive view of human affairs.

This trend away from vocationalism as it has been described probably has other roots as well--in a new religious era that may be in the offing. The writer is of the view that we shall experience in the Western world a return to a religious ethic based on love and charity, the Christian ethic prior to Calvinist doctrine. The interest of students in activities like the Peace Corps, the Poverty Corps, and the civil rights movement, concern with personal and social injustice, indicates that college students are groping toward a new ethic that will replace the Calvinist ethic of individualism, hard work, and success in competition with an ethic that emphasizes the rewards of charity and human relationships. Many college youth are demonstrating that "man doth not live by bread alone." In this time of affluence, most educated young people could readily devote themselves entirely to the pursuit of "the good life," that is, material satisfactions, enjoyment of leisure, and the like. Instead, many youth are intensely involved with issues that are essentially ethical and moral. As yet such dispositions on the part of many students and educators have not appreciably affected the curriculum or the academic world in a direct way, but it is likely that this will happen.

The degree to which immediate vocational interest declines and these trends in the direction of interdisciplinary studies, unity of scholarship as opposed to specialization, and concern with moral and ethical issues burgeon is, of course, very much a function of the extent of American military involvement. Clearly, should America's role in the war in Vietnam be intensified, these tendencies will be diminished. Probably they have already been curtailed somewhat by the draft and the semi-state of emergency in which Americans now live. The war in Vietnam and the ways in which it is reflected in the academic world display very clearly the mutual interplay between the experience of students and events at large on the national or international scene.

V. THE INTRA-INSTITUTIONAL CLIMATE

Dropouts

The work of Plant[39] indicates that changes comparable to those that occur among students may take place among youth who do not attend college. And there are people who argue that frequently formal education does more harm than good.[40] Nevertheless, a college or university is likely to judge its educational effectiveness at least to some extent on the basis of its "success" in retaining students. There tend to be rather standard dropout rates for types of institutions, that is, women's liberal arts colleges, state universities, prestigious men's and co-educational liberal arts colleges, and the like. Administrators of a college or university with a dropout rate significantly higher than that of its peers are likely to be perturbed. If the proportion of dropouts is about "standard" for that type of situation, however, little attention is likely to be paid the dropout.

The general acceptance of or blindness to the dropout phenomenon is a rather curious aspect of the American higher educational scene. I had occasion recently to serve as a consultant to a committee of faculty members of a prominent state university who were engaged in a thoroughgoing study of their university. I was commissioned to provide information concerning the undergraduate students. Among other information, I reported to the committee that 40 percent of the students who had entered the university in September, 1961, were being graduated with their class in June, 1965. Another 10 percent of these students were registered in the university in the spring semester of 1965, although they lacked enough units to be graduated. They had, that is, dropped out and returned or had otherwise fallen behind in units. Although these figures are about average for large state universities, the committee was thunderstruck by the information. The members of this committee, senior faculty members with long tenure at the university in question, were not acquainted, in short, with one of the most vital elements of information required to understand their students and the workings of their university. Was it not strange, they thought, that the curriculum presumed four consecutive years of attendance, and only a minority of entering students met the conditions?

Summerskill,[41] in his comprehensive summary of the dropout phenomenon, remarks, "our knowledge of the attrition process is surprisingly meager." And yet a predictable rate of withdrawal underlies institutional planning. At the university mentioned above, were the rate of withdrawal to be lowered suddenly, a host of problems would arise. The numbers and types of course offerings would have to be revised, classroom and residence hall allocations would require drastic overhaul, and the like. Summerskill reports that "apparently the attrition rate has not changed appreciably in the past forty years." It seems clear that in most colleges or universities dropping out has more to do with conditions in the institution, in its climate and in its operations, than with factors in the individual student. And what these conditions are and how they influence students seem to be part of the institutional "unconscious." Feder[42] writes that the "failure on the part of most colleges and universities to study clinically the causes of student mortality has denied to administrative officers and faculties valuable information in the area of serving constituent needs."

Suczek and Alfert[43] have carried out one of the few studies of dropouts which employs a complex, multivariate design. They utilized test, questionnaire, and interview data in comparing dropouts with their fellow students who persisted in enrollment at the University of California, Berkeley. Some of their findings are:

Male and female dropouts are significantly higher on the Impulse Expression scale.[44] High scorers on the Impulse Expression scale display more of the following needs or traits than low scorers: dominance, recognition, aggression, autonomy, acquisition, sex, exhibition, change, and excitance. Male dropouts with passing grades are higher than continuing men on the Social Maturity scale,[45] a non-ideological measure of Authoritarianism (scored in reverse fashion--the higher the Social Maturity score the lower the Authoritarianism score). Traits which are considered to be expressions of authoritarianism tendency are compulsiveness, rigidity, intolerance of ambiguity, punitive morality, submission to power, conventionality, and cynicism. Male and female dropouts with failing grades are significantly higher than continuing students on the Ethnocentrism scale. Compared to continuing students, male dropouts are more rebellious. They are more concerned to preserve their autonomy and independence. They have experienced more family conflict. They enjoy experimentation and diversity of experience; but they are easily diverted from goals, and they express more confusion about themselves. The male dropouts with passing grades express more interest in intellectual activities than continuing men. Men who do not drop out are more cautious, organized, serious, and dutiful, and they are more interested in social activities. They are optimistic and confident. Compared to continuing women, female dropouts are also more rebellious. Their homes are characterized by more discord. They express conflict about their role as women, and they are more preoccupied with sex. Continuing women are more religious and conventional, and they are more involved in social activities. The men who drop out and return are very intellectual in interests. The women who return express strong intellectual interests. They are independent, somewhat asocial, and interested in new experiences. Grades are an important index of return. Among the men who dropped out, 36 percent of those with passing grades returned versus 12 percent for the group with failing grades. The situation for women is similar--27 percent versus but 6 percent. The reasons for dropping out are (arranged by order of frequency):

Men	Women
1. Academic pressure and dismissal.	1. Academic pressure and dismissal.
2. Lack of interest in their studies.	2. Marriage.
3. Financial difficulties.	3. Feelings of loneliness and isolation.
4. Feelings of loneliness and isolation.	4. Desire to travel or interrupt education.

Suczek and Alfert have carried out systematic follow-up studies of their dropout sample. This has rarely been done in studies of dropouts. All but 19 percent of the dropouts were re-enrolled at Berkeley or were enrolled in another college or university, as of the time they would have been graduated normally. Some of the students comprising this 19 percent will eventually resume their education. So dropping out of Berkeley means termination of education for only rather a small minority of students. Some of the dropouts who have resumed their education, will, of course, drop out again before receiving a degree, however.

Suczek and Alfert investigated relationships between type of residence situation and dropping out. Private rooms and boarding houses show the highest dropout rate. The freshmen in private rooms or boarding houses either drop out or move to other kinds of housing. The next highest proportion of dropouts comes from commuting students who live at home. For men, dormitories and cooperative housing have the highest rates of retention. Sororities do best at retaining the women. It is evident that housing situations which provide easy contact with other students facilitate retention. Presumably certain features of more communal living help students to overcome anxieties and difficulties, cushion the impact of the "liberalizing" aspects of liberal education, and the like. In order to cut down the number of students who drop out, discouragement of "individual" or single residence arrangements seems to be in order. The situation of living at home seems to present particular problems. In the samples under study by Suczek and Alfert, 22 percent of the freshmen lived at home, the largest proportion of freshmen in any one kind of residence situation. Only a minority of the freshmen who live at home transfer to other housing arrangements, and their dropout rate is high--68 percent. All in all, it would seem that a major effort is called for in order to bring students who live at home or in residence situations in which they have little contact with other students into the life of the university community.

Thistlethwaite[46] reports on qualities of faculty that are associated with retention of high ability students. Faculty who promote enthusiasm, humanism, affiliation, independence, and achievement advance retention, whereas faculty members who foster compliance and vocationalism thereby contribute to dropping out. Darley[47] provides impressive information concerning differential dropout rates among institutions, when ability is controlled. In one Midwestern state, for example, 73 percent of the high ability men (the top 25 percent of high school graduates) who attended private colleges in the state were graduated as compared to but 47 percent who matriculated at state institutions.

Needless to say, dropping out is frequently a tragic occurrence in the life of a student. He may carry away with him a considerable sense of frustration and failure that will color his life for a long period of time. The study of Suczek and Alfert,[48] however, indicates that for many students the turmoil attendant upon leaving Berkeley is but temporary. Most dropouts go on to school elsewhere, and they report that they are happier in their new situations. It would appear, however, that a large proportion of dropouts would adversely affect the workings of a college or university. Much coming and going introduces inefficiency into educational programs. And clearly the establishment of an educational community is handicapped by the presence on a campus of large numbers of "transients."

As the ranks of the graduate schools expand at a rapid rate, as they are now doing, dropping out becomes a noteworthy occurrence among graduate students. I have talked to a number of administrators, department chairmen, and deans, for example, who express considerable concern over this phenomenon. They report that graduate programs are being increasingly disrupted by the unforeseen or abrupt withdrawal of students. It is distressing, for example, to award an important fellowship to a graduate student, only to have the student leave after a semester or a year. To my knowledge, no systematic study of the persistence of graduate students in their studies is under way.

Grading and Evaluation

Systems of grading and evaluation tell a great deal about the atmosphere or climate of a college or university. Bennington College and Sarah Lawrence College, for example, institutions which "tailor" the curriculum to the needs and talents of each student, eschew customary grading procedures. Rather, students are informed about their "progress" or performance in qualitative fashion. Similarly, qualitative descriptions of each student's achievement are sent graduate schools or other undergraduate colleges, in the case of transfer, in lieu of conventional transcripts. Over the years other colleges and universities have experimented with departures from the conventional system of letter grades, but the number of such institutions has hardly been large. There is general agreement that letter grades are very fallible measures of intellectual development.[49] Such arguments are summarized in Webster, Freedman, and Heist:[50]

> The grade-point-average is regarded by many teachers . . . as an inadequate measure of educational growth. There are a number of reasons for this. First, most instructors directly delimit the meaning of assigned grades by informing students, usually early in courses, that grades will be based only upon specific kinds of material, usually assigned reading or problem-solving skills, the retention of which can easily be tested later. Second, in experiments where faculty are asked to identify students for whom the college has been most successful in its aims, those named are not always A students (Brown, 1962).[51] Third, studies of college graduates, for example, Vassar alumnae (Freedman, 1962),[52] reveal that grades achieved in college are usually obscurely related to functioning or performance after graduation. Fourth, college grades are only moderately related to identifiable antecedent variables (Fishman, 1962).[53] Fifth, interviews show that the motives impelling students to achieve high grades are often indistinguishable from the desire simply to please and to obey parents, or similar authorities, who happen to value high grades. Sixth, students and teachers alike often suggest that high grades are only formal requirements--requirements for graduate school, prerequisites for later professional status, and the like--and it is inferred that grades cannot at the same time be measures of general educational status or development. Seventh, just as the achievement of high grades is insufficient evidence that education is taking place, failure to obtain high grades may not indicate that education has not taken place; at least this is found to be the case in studies of persons later identified as creative or highly productive (MacKinnon, 1959).[54] Eighth, owing to the kind of curriculum that exists in most colleges, grades are insufficient as indicators of educational progress, but are, nevertheless, necessary for that purpose;

> there have also been some educational experiments, however, in which grades were shown to be unnecessary. Ninth, it is now known that measures other than grades _are_ related to personal growth and development . . . . Finally, nearly everyone knows a few students in whom the need to achieve high grades seems to interfere with the educational process.

The conventional letter grade system, nevertheless, has been most perdurable. The arguments in favor of this system are well summarized by Miller;[55] for example, stability and uniformity of academic standards, an incentive to motivate students to work hard, the requirements of graduate school evaluation, the needs of business in appraisal of applicants, and preparation for the competitive struggles of life. In the last few years, however, the beginnings of what may be widespread experimentation with freer programs of evaluation may be discerned. The interest of psychologists and educators in creativity has lent weight to this movement.[56] MacKinnon reports that the grades obtained in college by research scientists were frequently mediocre. Nor were creative architects more successful as students in terms of grades or academic recognition. Increased sensitivity on the part of faculty members and administrators to the feelings and attitudes of students has probably contributed to the process of experimentation in evaluation as well.[57]

In _Education at Berkeley_ the Select Committee on Education of the University of California says:

> . . . we can report that student dissatisfaction with the present system is apparently not, as sometimes alleged, confined to a small, vocal, but essentially unrepresentative minority. We gathered this and other conclusions from a questionnaire[58] distributed last fall to a random sample of 2,576 returning students, to which 2,203 or 85.5 percent replied. These students were given four possible responses to the question: "How well do you think the grading system at Berkeley reflects the student's actual knowledge and understanding of the subjects studied?" Only a bare majority seemed to believe in the efficiency of the system (3.4 percent answered "very well," and 49.2 percent "fairly well"). No less than 41.8 percent answered "only slightly," and this result cannot be attributed solely to resentful disappointments: 35 percent of honors-list students (those students whose grade-point average the previous semester was 3.0 or better) in the sample answered this way, and 26 percent of those with grade-point averages of 3.5 or better. A more or less constant 5 percent of students at all grade-point average levels answered "not at all." Thirty-one out of 836 honors-level students (3.6 percent) believed that the system works "very well"; another 467 (55.8 percent) answered "fairly well." Obviously one should not expect enthusiastic support for any form of grading. But when two fifths of an honors-level student sample express such significant disbelief in the system which rewarded them, it is surely time to reconsider not only the grading system itself, but the increasing emphasis which we are pressed to place upon it. The questionnaire also indicated that 43 percent of those replying found grades a "major" worry; this figure included 41 percent of the honors-level students.
>
> Almost two thirds of the students replying took advantage of open-ended questions to suggest improvement, particularly with respect to the grading system. Almost half of those who commented on grading volunteered the suggestion that more pass-fail grading be used, especially outside the major or in the lower division. Others asked for a more sophisticated range of grades . . . . The open-ended comments did not suggest any particularly significant variations among schools, colleges, or majors. They did, however, challenge the allegation that pass-fail grading is the preference of mediocre performers; in a sample of 300 open-ended replies, the highest percentage favoring

> some form of pass-fail grading came from the honors-level students.

The Select Committee on Education goes on to make the following recommendations:

> The increased use of pass-fail outside the major would encourage intelligent students to seek challenging courses for breadth rather than safer surveys; in the upper division it would promote interdisciplinary studies where the present system too often discourages or even penalizes them. Above all it would de-emphasize the system itself, and thus create an academic milieu with greater freedom, diversity, leisure, and personally-motivated inquiry. It seems safe to predict that this milieu would give greater scope to the student with his own intellectual curiosity and discipline, who at present often resents the necessity to "play it safe," . . . and "never gets carried away" . . . . Another way to encourage evaluation in depth, and at the same time cut down on the frequency of final evaluation, is by the development of course sequences lasting for two or three terms, in which the final evaluation of the student can be deferred until the completion of the sequence . . . even if instructors choose to issue grades to all students at the end of each quarter, it would be both more meaningful and in the long run more efficient to have these grades reassessed by the instructor in the compilation of a final course grade, rather than automatically transferred to the student's record. The provisional quality of the quarter grade, and the possibility of finally improving it, would allow both the student and the instructor to concentrate their energies on long-term goals . . . . We also question the desirability of commencing the calculation of grade-point average immediately with the results of an entering student's first term. It is generally recognized that some excellent candidates for further academic work do poorly in their first term on this campus, whether from poor preparation at an earlier institution, or inadequate adjustment to new responsibilities. Probationary status may then impose additional requirements of performance that the student cannot yet meet. Although the time of academic reckoning should not be postponed indefinitely, we would see no harm in giving a slightly longer period of adjustment to entering students . . . . We therefore would formally

> recommend that the grading of entering students continue, but that the grades of the first term be disregarded in the calculation of grade-point average . . . . Departments, colleges, and schools should be encouraged by appropriate legislation to conduct further experiments in grading, including refinements in the present system.

Other campuses of the University of California, Santa Cruz and Irvine, are experimenting with pass-fail grading. California Institute of Technology has been evaluating a program in which only pass-fail grades are awarded in the freshman year. Cornell, Princeton, and Stanford students may now take courses outside their major field on a pass-fail basis. Liberalized grading and evaluative procedures are certainly in the air.

Student Culture and Student Society

Many and varied are the influences that impinge upon students during the college years--the ethos of the times, the system of grading and evaluation, parents and family, the content of courses, relationships with faculty, to name but a few. Isolation in rigorous fashion of the differential effects of these various influences is surely beyond the competencies of research workers at the present time, so intertwined are these forces. Nevertheless, when research workers and other observers of the college scene are asked to single out the one influence that is more potent than any other, there is likely to be general agreement. Students are swayed more by fellow students than by any other force. Sometime ago I ventured to say:[59]

> We believe that a distinguishable student culture exists, a culture superordinate to the individual and group differences among students. The student body as an entity may be thought to possess characteristic qualities of personality, ways of interacting socially, types of values and beliefs, and the like, which are passed on from one generation of students to another and which like any other culture provide a basic context in which individual learning takes place . . . . This culture is the prime educational force at work in the college, for . . . assimilation into the student society is the foremost concern of most new students. Suffice it to say now that . . . the scholastic and academic goals and processes of the college are in large measure transmitted to incoming students or mediated for them by the predominant student culture.

A description of certain aspects of student culture and society in a women's liberal arts residential college follows:

> If the peer culture is relatively autonomous with respect to faculty, it is also relatively free from direct influence by the students' families. There are few instances of homesickness, even among freshmen, and the daily lives of most students seem little affected by thoughts of home or family. Moreover, influence from other extra-college sources, including young men, is not great. Of course, the values and expectations regarding their future wives which prevail among the young men whom the student knows must be considered. The important fact is, however, that these are interpreted for her and often pressed upon her by her own female peer culture . . . . The student culture provides order and comfort. It instructs in how to behave in various social situations, in what to think about all manner of issues, in how to deal with common problems and troublesome external influences. It offers instruction in how to keep the faculty at a distance, how to bring pressure that will insure that the faculty behave in expected and therefore manageable ways. It permits pleasant association with faculty members but discourages genuine relationships of a kind that might challenge the basic values of students . . . . Whereas for most of the students involved the peer culture

> provides merely a convenient and comfortable means for dealing with a complex social situation and valuable preparation for the social world that they will enter after graduation, for others it is necessary for the maintenance of of stability of personality. There are students who have been unable to develop internal agencies of control. They have therefore come to depend upon the direction of their peers. Separation from the peer group would put them under a very severe strain. This is a source of that rigid adherence to peer values that one sees on occasion in students. It is a factor that makes for resistance to change in the culture as well.

Bushnell[60] approaches the college scene after the fashion of an anthropologist. A college contains a student culture and an academic (faculty and administration) culture. These two cultures are in a "contact" situation. The faculty conceives of its task as "acculturating" the "underdeveloped nation" of students. The students, concerned as they are to live a pleasant life on campus and to prepare for life after graduation, are somewhat resistive to this process of "acculturation." Rather, they are more involved in socialization within their own group--"enculturation" as Bushnell terms it.

Newcomb[61] describes certain of the processes that enter into the formation of student society and culture. Pre-college acquaintance, propinquity of residence, and similarity of attitudes and interests are the primary determinants of peer-group formation in students. Groups acquire power to reward conformity and punish dissidence. The influence of student peer groups varies with such conditions as the size and homogeneity of the group, its isolation from groups having divergent norms, and the importance a student attaches to acceptance by his peers. Newcomb argues that peer-group influence and educational objectives are not necessarily antithetical, and he describes conditions by means of which the processes of peer groups may contribute to educational ends. Newcomb, for example, suggests that overlap between the formal college unit and the living unit may enhance academic or intellectual experiences.

> In the typical large university it is hardly more than a chance occurrence if a set of students whose personal relationships are close find themselves simultaneously excited by the same lecture, the same book, or the same seminar, with resulting reverberations in their peer-group life, so that they re-enforce and sustain one another's excitement. Such outcomes are predictably more likely if arrangements concerning college (or subcollege) membership, living-group membership and classroom experience are so dovetailed that groups of individuals who are important to one another come to share many interests, including intellectual ones.

Becker, Geer, Hughes, and Strauss[62] describe student culture in a medical school as serving two major functions. It provides modes of adaptation that make tolerable the various pressures to which students are subjected. And it supports patterns of behavior and thought which students consider to be in their best interests, even though these patterns may be at variance with the desires of faculty and administration. The authors describe how an entering freshman class becomes a group--how freshmen arrive at an understanding of such matters as what medicine is, how much work is necessary, how best to budget time and prepare for examinations, and what to demand of their instructors. The authors also suggest ways in which medical educators may raise the level of effort, scholarship, and medical knowledge and practice of students by experimentation with combinations of types of students and with experiences which may change students' images of what they are and what they might become.

A pioneering study of student culture and society was Angell's The Campus: A Study of Contemporary Undergraduate Life in the American University.[63] Newcomb[64] demonstrated a close relationship between the prestige of students among their peers and the attitudes held by these students. At Bennington College in the late 1930's liberalism of political and social outlook tended to be associated with prestige among one's fellow students. Conversely, conservatism of outlook was likely to be related to somewhat lower esteem and popularity. Other studies concerned with student society and culture are Brookover,[65] Davie and Hare,[66] Gottlieb and Hodgkins,[67] and Smucker.[68]

Within any complex society or culture there are, of course, subcultures and subsocieties. Clark[69] and Trow[70] distinguish four major types of student subcultures:

> the collegiate world of carefree fun and school spirit; the academic world of serious study, whose members emulate their teachers and are often preparing for postgraduate work and academic or professional careers; the world of the vocationally oriented student, whose members are training for specific jobs; and the various "non-conformist" worlds of campus radicals and aesthetes and bohemians. Not all of these subcultures are represented on every campus; and where they do exist, they are found in very different strengths and have a very different impact both on their members and on non-members. The importance of these subcultures is that they comprise a major part of a student's college environment. The kind of subculture a student identifies with shapes the kinds of people he spends his time with, and the kinds of values and attitudes to which he is exposed, or indeed subjected. We cannot fully understand a college and its influence on different kinds of students without taking these subcultures into account.[71]

Cummings[72] has utilized the Clark-Trow typology of student subcultures in a series of empirical studies.

The Characteristics of the Entering Student

Student society and student culture may constitute the most important influence brought to bear on students during the college years. The most important determinant of the outcome of college experience, however, is the characteristics of the entering student or students. And diversity in such characteristics is indeed the situation that is encountered when we observe the American higher educational scene. As I have written:[73]

> The diversity of American colleges is a striking phenomenon. We have big colleges and small ones, men's, women's, and coeducational colleges, liberal arts and more technically oriented colleges, public and private colleges, and denominational and nonsectarian colleges,

> to list only some of the criteria by which we may distinguish among them. Of course, then, some diversity of student body is taken for granted. It is generally recognized, for example, that the students at some colleges are drawn from higher levels of social strata than at others, and that at some colleges the students are well above average in intellectual or academic orientation, while at others students are well below. Only in recent years, however, have we begun to receive detailed, systematic knowledge of the differences which exist among students in our colleges . . . . These research findings point up the enormous diversity of student characteristics which may be found among colleges and often within the same college. Students differ not only in intellectual capacity as measured by various tests but also in many other qualities which are highly relevant to the process of higher education.

Traxler[74] estimated that the range in average I.Q. among 323 colleges based on the American Council on Education Psychological Examination was 94 to 123. According to McConnell and Heist:[75]

> The differences in the intellectual characteristics of American colleges and universities are so great as almost to defy description . . . . In the single state of California one finds a range of over three standard deviations . . . in the mean aptitude scores of entering freshmen among all institutions. In another state, the mean freshman score in the most selective institution was a standard deviation above that of the least selective institution. The mean ACE scores of freshmen in the Protestant and private liberal arts colleges of the North Central Region varied from 94 to 123 . . . . The variations in means in the Northeast for the same type of schools was from 111 to 131. In the South, excluding Negro colleges, it was from 68 to 123.
>
> So great is the range of average ability of students among liberal arts colleges that although they may be similar in structure, professed purposes, and curricular organization, the intellectual resemblance is superficial indeed. In the intellectual demands these colleges can make on their student bodies they are most dissimilar.

> . . . institutions also differ in degree of internal variability. The dispersion of academic aptitude is greater in some colleges and universities than in others, and relatively more homogeneous student bodies may be found among colleges at either extreme of selectivity. But even in the least heterogeneous institutions there are still wide differences in ability. To cite the extreme, we found certain freshmen attending colleges in which their measured aptitude was a full standard deviation above that of the next highest student in the distribution.

Webster, Freedman, and Heist[76] report differences in personality characteristics between freshmen at Bennington and at Vassar which bear striking testimony to differential "image" or selective power that institutions may exert. Bennington and Vassar students are very similar in intellectual level and social class background. They are, however, very far apart in qualities of personality.

> Obtained means for Bennington freshmen on Social Maturity (Webster, Sanford, and Freedman, 1955),[77] Developmental Status (Webster, 1958),[78] and Impulse Expression (Sanford, Webster, and Freedman, 1957)[79] are greater than the corresponding means for Vassar seniors . . . . The results . . . support the view that differing public images attract different students to the two colleges and that the differences persist despite developmental processes which lead students in both schools in the same direction--which is one of less conservatism, increased tolerance for individual differences, and more freedom to express impulses.

Astin,[80] Clark,[81] Holland,[82] McConnell and Heist,[83] Richards and Holland,[84] and Thistlethwaite[85] note striking differences in students both within the same institution and among colleges in characteristics other than direct intellectual performance or capacity. For example, National Merit Scholars or near-winners (the Certificate of Merit) who choose colleges which rate high in production of scholars who go on to graduate school and obtain the Ph.D. degree have certain distinctive qualities as described by Holland:[86]

> the selection of an institution with a high rating on the Knapp-Goodrich or Knapp-Greenbaum indexes conforms to a pattern indicative of less concern with externals and more concern with intellectual values. Mothers have a high level of education, and both parents express preference for a small college which will develop the student's intellectual capacities. Their children, too, desire a small college, and one which has a high academic standing. The personality scores of these students imply capacity for achievement and creativity. This interpretation is reinforced by their preference for pure rather than applied science and their relatively long-term academic goals. In contrast, the choice of an institution with a low rank is related to personality patterns less favorable for intellectual achievement.

Similar personality differences between students who select colleges which rank high in production of scholars who obtain the doctorate versus those who choose colleges which rank low were found by Heist (1958). He observed that high-ranking institutions have students who are more socially introverted, more complex in their outlook and perceptions, more original, and less authoritarian.

Holland[87] finds other differences among students who attend various types of colleges; for example, private versus public or religious versus nonsectarian. He describes National Merit Scholars or Certificate of Merit winners in this way:

> the selection of a private institution is correlated with a high socio-economic status pattern. Parents have high

> incomes, advanced education, and many books in the home. They see college training as a way to develop moral standards and intellectual abilities, and to learn how to enjoy life. Their ideal college is a high-cost institution which is private, single-sex, away from home, and noted for its liberal arts training. Their children reiterate these goals and values in explaining their selection. Unlike students selecting public colleges, they aspire to higher educational degrees, have more verbal ability, and are characterized by personality traits which are associated with higher academic achievement.

The diversity of intellectual and personality characteristics among students poses many problems for the educator. A college with a wide range of intellectual talent and characteristics represented in the student body probably faces a stiffer educational challenge to "do right" by all students than one in which the range of such characteristics is more limited. Honors colleges and programs have become a prominent feature of the college and university scene in recent years in an attempt to present special educational opportunities to superior students who are attending institutions with large numbers of less intellectual or academic students. Fricke[88] suggests that colleges select students within a limited range of ability. A correlative proposal might well be that colleges with student bodies differing widely in intellectual capacity pursue different educational goals. Should a college which contains a student body whose mean I.Q. is 100 attempt to do the same things as a college which has a student body whose mean I.Q. is 125? Research investigations of colleges and universities of less prestige and prominence than those investigated thus far would help answer questions such as these. Very little is now known about what goes on in institutions of higher learning other than the largest and most prominent public universities or the prestigious liberal arts colleges. The researches now being carried out by the Center for Research and Development in Higher Education of the University of California at Berkeley and the Project on Student Development in Small Colleges[89] will help to remedy some of these deficiencies. In addition to the problem of evaluating the importance and effects of intellectual homogeneity and heterogeneity among students, as we have seen, the diversity of personality characteristics which have important consequences for education add to the difficulties. Even when intellectual level is held constant, students may differ widely in such ways as degree of readiness for new experience, interest in more practical versus more liberal education, or desire to attend graduate or professional schools.

The appeal of limiting diversity of student characteristics, particularly intellectual qualities, is obvious enough. Educational programs may readily be pitched at levels appropriate to the majority of students. Yet the possible values of diversity of student characteristics ought not to be ignored. Cooperative climates of learning may be established, for example, in which differences in intellectual or academic ability may be utilized to serve useful ends for both "good" and "poor" students. Consider the situation in fraternities and sororities, for example, in which better students assume an obligation to help fraternity brothers or sorority sisters who are experiencing academic difficulties. The students who are tutored benefit thereby. And their tutors benefit as well. They make a contribution to their fellow students and to the fraternity or sorority as a community. In addition, they gain teaching experience. Colleges and universities in which there are wide ranges of intellectual level and interest in academic and intellectual matters could be organized in similar fashion. Sanford[90] suggests that "seniors do some teaching or help with the teaching of academic subjects." He says,

> I am not thinking here primarily of helping freshmen, nor of helping faculty with their enormous teaching burden; I am thinking rather of helping seniors. If we invite seniors to worry about freshmen, they gain a new awareness of themselves . . . . But probably most important would be a change in the senior's relationship with faculty members . . . . I have seen it happen that when seniors were taken on as teaching assistants they immediately began to behave as adults. This is important, but when this happens with just a handful of students at one institution they are put under something of a strain. The movement into adulthood may be too abrupt and may bring alienation from fellow students. It would be better if their teaching activities were institutionalized and performed on a large scale. This would create a student-faculty community in which no student had adulthood too suddenly thrust upon him. If we could arrange things so that the intellectual activities of students really contribute something to the community in which they live--rather than stand as the means by which they advance themselves at the expense of their friends and neighbors--we would at once promote the intellectual life and the values of decency and social

> responsibility. The intellectual in our society is much too alienated from his community and consequently much too defensive. Feeling that he is not understood or appreciated, he mutters contemptuously about "togetherness" and sinks more deeply into isolation and meanness. I think this is most likely to happen to a person who has never had an experience in which his best intellectual endeavor became a part of group enterprise, so that its social meaning and relevance became apparent to him.

The Curriculum and Fields of Study

Fields of study and factors associated with them are an important component of the climate of an educational institution, to be sure. Considerable evidence is available to demonstrate that students in various major fields differ in intellectual characteristics, attitudes and values, and qualities of personality.[91] Just as various colleges and universities may have differential images and may attract students who differ systematically, so do fields of study appear to "invite" students who vary in consistent ways over fields and disciplines. Students of engineering, for example, are likely to rank high in intelligence but low in liberalism.[92] At Michigan State University, Lehmann and Ikenberry[93] demonstrated a four-way split in attitudes among students in various majors. Students in communication arts are liberal and other-directed; liberal, inner-directed students are represented by those in the sciences and the arts; in the applied sciences the students are conservative and inner-directed; in education and to a lesser extent in business and public service students are conservative and other-directed.

It is easy enough to demonstrate that personality and intellectual differences among students in various major fields may be ascribed at least in considerable part to qualities possessed by students before they embarked on studies of the disciplines in question. More difficult of assessment is the effect of majoring or concentrating in one field of study or another. Jacob,[94] for the most part, considers that the influence of American college experience is rather undifferentiated. The particular effects of individual courses and fields of study are limited. This view of things is supported by the researches of the Mellon Foundation at Vassar.[95] Personality differences based on the scales of the Vassar Attitude Inventory[96] which were found among students in various major fields of study in the senior year were very much a function of characteristics possessed as freshmen by the students in question. The differences of seniors in scale scores were in short paralleled by differences that could be discerned in the scores attained by freshmen before they had selected a major. These results were attained by testing freshmen and then retesting them four years later. Differential change scales, scales developed by Carl Bereiter to maximize assessment of change, revealed changes among Vassar students that *were* related to the differential influences of fields of study. The influence of major field was rather small, however.

At Michigan State[97] the differential influence of departments or schools within the university was much more clearly observable. One would presume that at a relatively small residential college like Vassar a powerful campuswide culture tends to influence all students in much the same way no matter what their field of study. At a much larger and more complex institution like Michigan State, many cultures or climates may be found, and they influence students in significantly different ways. Even when differential effects of field of study may be discerned, however, their origins remain obscure. At Vassar literary fields of study as compared to the natural sciences contribute to unconventionality (liberal social attitudes and unconventionality in conduct and style of life) in students.[98] To what extent is this a function of the influence of other students in these fields, the faculty, or the content of courses? Answers to questions like these require researches that employ systems and complex multivariate designs. Such researches have not thus far been carried out.

> Despite its central place in the program of the college, the curriculum rarely has been made the object of systematic investigation. There is, of course, a vast literature on the curriculum. But most of it has been concerned with descriptions of existing programs and with proposals for reform rather than with the demonstration of effects upon students. The great curricular revolutions that have taken place in the United States . . . have not been accompanied by controlled observations that would permit comparison, in terms of effects, of one curriculum with another or give evidence that changes in students were due to the curriculum

and not to other features of the college environment. There have been some efforts to assess scientifically the effects of a particular kind of curriculum, for example, Dressel and Mayhew (1954), and there have been numerous studies of the effects of particular courses (Jacob, 1957). But when scientists have carried on investigations in the colleges they have tended to stress other aspects of the educational process--aspects such as methods of teaching, the student's sociological background and motivation, and the kind of associations he forms with his peers . . . . We have indicated . . . that a redefinition of the curriculum is necessary in order to ensure its greater impact . . . . The needed revision of the curriculum will, we believe, depend upon at least the following four conditions: (1) a better articulation of the central features of differing curricular modes of presentation and content. (2) Continuing experimentation . . . . We need curricular science; that is, a continuing process of theoretically guided experimentation; and assessment of its results, so that a cumulative curricular reform can be built into the curriculum itself. (3) Self-examination of teachers. (4) Recognition of the differing impact of the curriculum on differing students.[99]

VI. INTERACTION OF CHARACTERISTICS OF STUDENTS AND INFLUENCES OF COLLEGES AND UNIVERSITIES

Concerning researches on college students in the years 1960-65, Yonge[100] comments:

> Perhaps the most salient and important research trend to emerge was the systematic investigation of the interaction between student and environmental characteristics. These studies focused on the correlations among measured student and environmental characteristics as well as the study of student-college self-selection. Perhaps this shift from a predominantly descriptive to a more dynamic level of analysis may be considered a major breakthrough in the socio-psychological study of the student in higher education.

Graduate Studies and the Ph.D. Degree

The goals of liberal education are not readily translatable into measures which educators agree are valid indexes of educational development. This is one of the reasons why studies of the outcome of higher education are in short supply. There is one exception, however--the efficiency or efficacy of undergraduate colleges in producing graduates who go on to graduate schools, particularly those who go on to obtain the Ph.D. In the last decade this issue has been illuminated by a number of very interesting publications.[101] The basic question centers on the relative importance of characteristics of entering students versus the influence of the campus environment in motivating students to go on with studies beyond the undergraduate level. As reports of these researches have emerged, the pendulum has swung back and forth between the positions of emphasis on initial characteristics of students and of emphasis on the potency of the college environment.

> Several of these papers offered somewhat contradictory findings concerning the productivity of Ph.D.'s as a function of college environment in view of the use of both different criteria of output and various kinds of statistical adjustments to correct for differences among colleges relative to (a) ability level of students, (b) major fields, and (c) such characteristics as intent and aspiration.[102]

The publications of Knapp and Goodrich, and Knapp and Greenbaum[103] focused attention on the importance of the college environment. Differences in college characteristics and atmosphere affected the attitudes and ambitions of students differentially. As knowledge about the considerable dispersion over colleges and universities of intellectual and personality characteristics of entering students accumulated in the late 1950's and early 1960's, the emphasis shifted to qualities of students as the major explanatory factor. More sophisticated analysis and measurement of institutional environments once again, however, brought the role of qualities of the institution to the fore, although characteristics of students were not to be ruled out, of course. A study of National Merit Scholars,[104] for example, suggested that faculty were influential in influencing levels of educational aspiration of students.

> Men who report that their teachers exert relatively strong press for independence, supportiveness, and application--or who are exposed to honors programs or to peer groups characterized by openness to faculty influence--tend to raise their aspirations for advanced training more than men not reporting such press. Plausible rival interpretations in terms of pre-college characteristics were ruled out by covariance analysis.

Astin[105] noted relationships between institutional characteristics and levels of academic aspiration. Interest in obtaining a Ph.D., for example, is inversely related to size of student body and the proportion of male students in the student body. Astin[106] reported, however, that relationships between academic ambition and characteristics of colleges and universities tend to be of a low order. In general, characteristics of entering freshmen have much more to do with decisions to seek graduate education than qualities of college environment. A paper by Astin and Nichols[107] supports this view of things as well.

Measurement of Environmental Influences (Press) and Student Characteristics (Needs)

The College Characteristics Index (CCI) was developed by Pace and Stern.[108] By means of the CCI, colleges may be characterized in accord with the kinds of influence (press) they exert upon students. The index tries to answer a number of questions. Are students treated formally or informally by faculty, for example? Are faculty demands upon students heavy or light? Does the general teaching procedure emphasize lectures versus free discussion? Stern[109] has devised an Activities Index (AI) which is the counterpart for the individual student of the CCI. The AI measures the extent to which a student's dispositions or needs may be "congruent" or "dissonant" to the general climate of the college. One may evaluate, for example, the extent to which a student is a "dependent learner," that is, requiring of faculty or external suggestion and direction, and the extent to which the college he attends is likely to meet such needs.

Pace[110] has introduced the College and University Environment Scales (CUES). CUES furnishes measures of five factors of the college and university environment which Pace terms practicality, community, awareness, propriety, and scholarship. Pace and Stern have explicated the issue of the interrelationship between college environment and student characteristics with a number of important publications.[111] Anne McFee[112] has contributed to this matter as well. The reader is referred to Stern[113] for a comprehensive summary of research findings involving the CCI and the AI. For example, Stern reports significant relationships between profiles based on press scales and types of institutions. Three rather distinct types of colleges emerge: (1) the denominational colleges which emphasize conformity, constraint, and dependence, (2) the small private liberal arts college which stresses autonomy and ranks high on intellectual press, and (3) the colleges in which social pleasures and student solidarity are prominent and in which academic strength and purpose are minimal.

The Environmental Assessment Technique (EAT)[114] measures student and environmental characteristics. The EAT assesses eight characteristics of a college or university: size and average intelligence and six dispositions based on the proportions of students graduated in various major fields, viz., realistic, intellectual, social, conventional, enterprising, and artistic. Astin[115] factor-analyzed 33 college attributes and obtained six major factors--affluence, size, private versus public, masculinity, realistic emphasis, and homogeneity of environment. A factor-analysis of characteristics of entering freshmen[116] yielded six principal factors--intellectualism, aestheticism, status, leadership, pragmatism, and masculinity.

Needless to say, researches that deal with matters so complex as the interrelationship of student and environmental characteristics have methodological flaws that have not yet been overcome. These are well summarized by Yonge.[117] He says, nonetheless, "Astin, Pace, and Stern have provided an inestimable contribution to the literature dealing with the student in higher education. Their pioneering studies are truly breakthroughs; they have shifted the research emphasis from a descriptive to a dynamic model."

The Interaction of Personality and College Environment

The researches reported above in this section are getting at the heart of the matter. What kinds of students do well in what kinds of environments? Fishman,[118] Pervin and Rubin,[119] and Stern, Stein, and Bloom[120] address this issue as well. Perhaps the definitive paper on this general subject is that of Brown.[121] Brown argues that the study of determinants or predictors of achievement in college requires suitable criteria of achievement. These criteria must rest on conceptions of the goals of liberal education. In support of his argument Brown reports a study of his own[122] in which the criterion of success in college was designation by faculty members as "the kind of student the college ought to produce." The relationships of this criterion to grades, and to various qualities of personality and background, are shown to have theoretical significance and practical importance. This study informs us of the characteristics of personality in women students that appeal to a liberal arts faculty. To be nominated as "ideal" a student must rank fairly high in her class, but she by no means needs "straight A's."

Brown goes on to discuss the interaction of student personality and college environment.

> It appears . . . that fairly stable personality structures exist at the time of the college experience and can be quite determining of that experience in the absence of other environmental pressures, arising from the college, strong enough to counteract the structures. We know, however,

. . . that changes can and do take place as a function of college attendance. Even if one remains pessimistic as to the amount of change possible at the basic level of personality structure, it is logical to assume that no personality structure is unidimensionally related to any single form of future development, and that therefore differential experiences at college can, and do, effect important and lasting changes.

After admitting that there is a paucity of data on academic achievement, what can be concluded from the sort of studies cited? First, that academic achievement is a function of more than intellectual capacity. Motivational factors, arising from long-standing predispositions in the individual, and current environmental demands are as important as capacity. The individual factors are mediated by the family and early social identity groups during socialization; and in turn, socialization is shaped by interpersonal family dynamics and broad social-ethnic ideologies relating individuals to the general scheme of life. Such factors as these predispose individuals to perceive and to react selectively to the educational experience. The educational experience, in turn, is mediated by a faculty working in a formal institutional structure that consists of several subcultures. Membership in and identification with any of these subcultures will color the nature of and the receptivity to the educational process and may interact with native capacity and individual predispositions in such a way as to determine the level of academic achievement broadly defined.

The problem of selection might better be thought of in terms of channeling the right students to the types of college that can maximize the potential of each type of student. It might be necessary . . . to create new types of environments if we want to be in a position to serve as many students as possible. With full appreciation of the individuality of each student, we must nonetheless look for the essential communalities that will allow educators to design the finest types of educational environments in order to foster the fullest intellectual development of the largest number of students. It is only with such knowledge of individual development and a clear statement of the goals to be achieved that education can become less haphazard than it is now.

VII. THE IMPACT OF THE COLLEGE ON THE STUDENT

Changes in Personality, Attitudes, and Values

As Trent[123] suggests, changes in personality and in attitudes and values occur in but very limited ways at many colleges and universities. At most of the largest and more prestigious institutions, however, certain uniform kinds of development do take place. Changes in some students are large; in others they are small. Few students, however, remain untouched. Very generally the primary pressure of college education is in the direction of increases in sophistication, complexity, relativism of outlook, and independence. Comprehensive reviews of personality development in the college years may be found in Boyer and Michael,[124] Freedman,[125] and Webster, Freedman, and Heist.[126] As I have pointed out:

> The chronology of personality changes during the college years is an interesting phenomenon. The evidence is that the changes occur early in the college experience, mainly within the first two years and more particularly within the first (Webster, Freedman, and Heist, 1962). Moreover, various researches demonstrate that these changes have considerable persistence. When alumni who have been tested as seniors are retested, five to fifteen years after graduation, results for both the seniors and alumni look quite similar. There is no evidence, for example, of a general trend toward reversion to freshman norms or responses (Freedman, 1962).[127] These findings suggest that we may think of a developmental phase of

> late adolescence as beginning at some point in secondary school and as coming to an end (at least for many students) by the end of the sophomore year of college. Consideration of juniors and seniors as in a developmental phase of personality different from that of freshmen and sophomores may well be an argument for different kinds of college experiences for lower-classmen and upperclassmen. In this sense there may be a good deal of wisdom in the junior college arrangement.[128]

Changes in Intellectual Functioning

Aside from the wealth of research utilizing achievement tests, tests which measure the degree to which students have learned the content of various courses or disciplines, studies of intellectual or cognitive functioning at the college level are indeed rare. The situation is in sharp contrast to the ferment and excitement that may be found at the secondary-school and particularly at the primary-school levels of education. In the last decade, such terms as insight, problem-solving, creativity, inquiry, originality, and discovery have become household words at these levels of education. Curriculums and methods of instruction that serve to elicit these qualities in students are being developed at a great rate.[129]

Why is the higher educational scene so barren? To a considerable extent the answer has to do with the belief that increments of improvement in intellectual functioning are negligible after ages 14 to 17 or thereabouts. Consider the remarks of Inhelder and Piaget:[130] "this work seems to imply that the thinking of the adolescent differs radically from that of the adult . . . he gradually structures a formal mechanism (reaching an equilibrium point at about 14-15 years)." This view of things is an oversimplification, however.

> Evidence is increasing (Bayley, 1957)[131] that there are large individual differences in the time of life at which a maximum or ceiling of mental ability is attained. A study by Bayley and Oden (1955)[132] demonstrates that gifted adults made substantial gains in reasoning ability even after age 30. It appears that the more intelligent subjects of any particular age, in comparison with less intelligent people of the same age, are not only increasing in measured ability at a faster rate, but also are farther from their point of maximum ability (they are farther both in time and in amount of ability) (Bayley, 1956).[133] Increases in mental ability may therefore be anticipated among many students after they enter college, and marked increases have been observed for some students (Florence, 1947; McConnell, 1934; Silvey, 1951).[134] The chances are that improvement of intelligence tests will reveal even more change in ability, both in degree and in kind, among college students in the future. Many educators and administrators are bothered by changes in intellectual functioning during the college years. Concerned as they are to sort out students and institutions, to categorize them along axes of ability, so that colleges and universities may be compared one with another or students referred to the college appropriate to their abilities, they would rather that students stayed in their places. Fluctuations in score which appear to represent true change rather than error of measurement get in the way of these sorting and categorizing enterprises. In these days of bigness and bureaucracy, however, it is encouraging to know that individuals will not stand still so as to make it easy for an official of one kind or another to reduce them to a static score or a cipher. The development of the individual to the fullest extent possible is, of course, the most appropriate educational goal in a democracy, and it is salutary to realize that even intellectual ability, which has long been regarded as a stable property or characteristic in adulthood, cannot be assumed to be fixed by the time of college entrance.[135]

Changes in cognitive and intellective functioning have been investigated by Dressel,[136] Dressel and Mayhew,[137] Gruber and Weitman,[138] and Mayhew.[139] The results they report are hardly startling, but they are encouraging. Dressel and Mayhew[140] report, for example: "In general it was found that students gained in ability to think critically in social science over a period of a year, although the size of these gains varied widely, depending on the institutions that students attended." Meadow and Parnes[141] and Parnes and Meadow[142] report favorable results for a course at the college level in "creative problem-solving," although Maltzman[143] and Taylor, Berry, and Block[144] express skepticism concerning these findings.

Empirical study of the processes of learning and thinking at the college and university level is surely an untapped field. A good starting point might well be the seminal conjectures of Guilford:[145]

> Before we make substantial improvement in teaching students to think, in my opinion we will have to make some changes in our conception of the process of learning. The ancient faculty psychology taught that mental faculties grew strong by virtue of the exercise of those faculties. We all know from the many experiments on practice in memorizing that exercises in memorizing are not necessarily followed by improvement of memory in general. We all know that exercises in perceptual discrimination of certain kinds are not followed by improvement of perceptual discriminations in general . . . . Following this series of experiments the conclusion has often been that learning consists of the development of specific habits and that only very similar skills will be affected favorably by the learning process. In view of the newer findings concerning primary abilities, the problems of formal discipline take on new meaning, and many of the experiments

> on the transfer of training will have to be re-examined and perhaps repeated with revised conditions . . . the other alternative to the idea of formal discipline is not necessarily a theory of specific learning from specific practice. There is certainly enough evidence of transfer effects . . . . A general theory to be seriously tested is that some primary abilities can be improved with practice of various kinds and that positive transfer effects will be evident in tasks depending upon these abilities.

VIII. EXPERIMENTAL COLLEGES

Within the past several years interest in experimental colleges and programs, rather dormant since the 1930's, has been revived on the higher educational scene. Experimental colleges prior to 1960 are well described by Hatch.[146] An overview of recent developments is afforded by Mayhew:[147]

> These new institutions demonstrate several new or renewed trends in higher education. First, they generally reflect a desire on the part of educators to capture some of the educational potential of small colleges without yielding the undoubted virtue of large size. Thus Monteith, New College at Hofstra, Santa Cruz, the University of the Pacific, and Michigan State have all been attracted to the college-within-a-college concept. And this appears to be no passing fad. Several of the largest universities . . . are exploring ways of subdividing enormous enrollments, especially in colleges of liberal arts and business, to ensure close relations between students and faculty. A few schools with commuting students are also searching for ways to regroup students more effectively.
>
> Related to this quest for integrity through size is the equally prominent search for integrity through curriculum. Each one of these new colleges is seeking, through some variant of the liberal arts or general education curriculum, insurance against undue specialization or fragmentation of educational experience. Each planning group assumes that all students, regardless of ultimate vocation, should be exposed to the broad outlines of human knowledge.

A community of manageable size in which all participants may know one another is the desideratum. And the synoptic view of knowledge is stressed. Of particular interest in these experimental ventures is the situation of the commuter college. Needless to say, the establishment of a sense of community is rendered very difficult on a campus which has a preponderance of nonresident students. And yet here is where the real educational challenge of the future lies. With each passing year the percentage of nonresident students grows. Appropriate academic and social climates which meet the needs of commuting students must be evolved. Under the direction of Joseph Axelrod,[148] the Downtown Center of San Francisco State College has devised a program for freshmen and sophomores which emphasizes a small and closely knit community of faculty and students, an integrated curriculum, and involvement and participation in the affairs and activities of the city of San Francisco.

The particular ways in which students who matriculate in this program at San Francisco State College are influenced by it will be studied by comparing these students with random samples of students who undergo the customary lower-division experience. Similarly, students who are participants in an experimental college at the Berkeley campus of the University of California under the direction of Joseph Tussman are being studied by Robert Suczek.[149] And extensive empirical research is a feature of the activities of the Experimental College at Monteith.

Such researches are all too rare. Most educational innovation has not been studied empirically. So it is that the knowledge and wisdom gleaned by the participants has not been shared by colleagues in the wider educational community. One can only earnestly hope that empirical research will be an intrinsic component of the educational innovations and reforms of the future.

FOOTNOTES

[1] New York, Harper and Bros., 1957.

[2] Ibid., p. 46.

[3] In my view intellectuals are not so powerless to influence American society and culture as many of them seem to think. Their opinions often have considerable impact. Consider the influence of pediatricians, psychiatrists, and psychologists on practices of child-rearing in the United States.

[4] James W. Trent, "A New Look at Recruitment Policies." College Board Review, vol. 58, p. 7-11. Winter, 1965-66.

[5] Walter T. Plant, "Longitudinal Changes in Intolerance and Authoritarianism for Subjects Differing in Amount of College Education over Four Years." Genetic Psychology Monographs, vol. 72, p. 247-87. 1965.

[6] Mervin B. Freedman, "Personality Growth in the College Years." College Board Review, vol. 56, p. 25-32. Spring 1965. Nevitt Sanford, ed., The American College: A Psychological and Social Interpretation of the Higher Learning. New York, John Wiley and Sons, 1962. Harold Webster, Mervin Freedman, and Paul Heist, "Personality Changes in College Students." In Sanford, ed., The American College, op. cit.

[7] David Riesman and Christopher Jeneks, "The Viability of the American College." In Sanford, ed., The American College, op. cit.

[8] Magoroh Maruyama, "The Second Cybernetics: Deviation-Amplifying Mutual Causal Processes." American Scientist, vol. 51, p. 164-79. June, 1963.

[9] Jaffe and Adams contest this commonly accepted view. They argue that the proportions of high school students who go on to college now does not differ from the proportion of a century ago. Increases in enrollment are a function of population expansion.

A. J. Jaffe and Walter Adams, "Trends in College Enrollment." *College Board Review*, vol. 55, p. 29-32. Winter, 1964-65.

10. New York, John Wiley and Sons, 1964.

11. Bruno Bettelheim, "How Much Can Man Change?" Review of Benjamin S. Bloom, *Stability and Change in Human Characteristics*. In *The New York Review of Books*, September 10, 1964, p. 3.

12. Burton R. Clark, *Educating the Expert Society*. San Francisco, Chandler, 1962.

13. Erik H. Erikson, "The Problem of Ego Identity." *Journal of the American Psychoanalytical Association*, vol. 4, p. 56-121. 1956. Dana L. Farnsworth, *Mental Health in College and University*. Cambridge, Mass., Harvard University Press, 1957. Freedman, "Personality Growth," *op. cit.* Sanford, ed., *The American College, op. cit.* Robert W. White, *Lives in Progress*. New York, Dryden, 1952.

14. Rose K. Goldsen, Morris Rosenberg, Robin M. Williams, Jr., and Edward A. Suchman, *What College Students Think*. Princeton, N. J., Van Nostrand, 1960. Webster, Freedman, and Heist, *op. cit.*

15. Jerome S. Bruner, *The Process of Education.* Cambridge, Mass., Harvard University Press, 1960.

16. Benjamin S. Bloom, *Taxonomy of Educational Objectives*. New York, Longmans, Green and Co., 1956.

17. L. V. Bertalanffy, "The Theory of Open Systems in Physics and Biology." *Science*, vol. 111, p. 23-29. 1950. F. E. Emery and E. L. Trist, "Socio-Technical Systems." In C. W. Churchman and M. Verhulst, eds., *Management Sciences: Models and Techniques*. Vol. 2. London, Pergamon, 1960. E. Jacques, *The Changing Culture of a Factory*. London, Tavistock, 1951. Philip Selznick, *Leadership in Administration.* Evanston, Ill., Row, Peterson, 1957. Edward C. Tolman and Egon Brunswik, "The Organism and the Causal Texture of the Environment." *Psychological Review,* vol. 42, p. 43-77. 1935.

18. *Op. cit.*

19. Mervin B. Freedman, "Changes in Six Decades of Some Attitudes and Values Held by Educated Women." *Journal of Social Issues*, vol. 17, p. 19-28. 1961.

20. Theodor Adorno, Else Frenkel-Brunswik, Daniel Levinson, and R. Nevitt Sanford, *The Authoritarian Personality*. New York, Harper and Bros., 1950.

21. Clark, *Educating the Expert Society*, *op. cit.*

22. Mervin B. Freedman, "The Post-Industrial Generation: Roots of Student Discontent." *Nation*, vol. 200, p. 639-43. July 14, 1965.

23. Paul A. Heist, "Intellect and Commitment: The Faces of Discontent." In Owen A. Knorr and W. John Minter, eds., *Order and Freedom on the Campus*. Boulder, Colo., Western Interstate Commission for Higher Education, 1965.

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26. Lewis B. Mayhew, "College Student Relationships in Historical Perspective." Stanford, Calif., Stanford University, 1966. Mimeographed.

27. Kenneth Keniston, *The Uncommitted*. New York, Harcourt, Brace and World, 1965.

28. Leslie A. Fiedler, "The New Mutants." *Partisan Review*, vol. 32, p. 505-25. Fall, 1965.

29. Mervin Freedman and Harvey Powelson, "Turned on and Tuned Out: Drugs on the Campus." *Nation*, p. 125-27. January 31, 1966.

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31. Omar Khayam Moore, "Technology and Behavior." *Proceedings of the 1964 Invitational Conference on Testing Problems*. Princeton, N. J., Educational Testing Service, 1965.

32. Philburn Ratoosh, Paper presented at a symposium on "What

Can Philosophy Do for Science" at American Association for the Advancement of Science, Berkeley, Calif. December 1965.

33. Clark, *Educating the Expert Society*, *op. cit.* p. 237.

34. These figures and those to follow are based on choice of major as of the junior year.

35. Robert C. Nichols, "Career Decisions of Very Able Students." *Science*, vol. 144, p. 1315-19. June 12, 1964.

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ANNOTATED BIBLIOGRAPHY

1. American Council on Education, *The Student in Higher Education.* Washington, American Council on Education, 1965.

This monograph contains a series of papers that are of particular interest because of their compassionate and yet probing attention to the student protest movement. These papers place this movement in wider historical, educational, psychological, and sociological perspective. The table of contents: "The Revolutionary Frame of Our Time," Max Lerner; "Neglect of Students as a Historical Tradition," Frederick Rudolph; "Institutional Factors and the Learning Environment," Lewis B. Mayhew; "Research on Student Characteristics: Current Approaches," Theodore M. Newcomb; "Rights and Responsibilities in the Student-College Relationship," Charles Frankel; and "Perspective on the Student and His College," C. Robert Pace.

2. Baskin, Samuel, ed., *Higher Education: Some Newer Developments*. New York, McGraw-Hill, 1965. 342 p.

This book is sponsored by the Association for Higher Education. "The New Colleges," a chapter by Lewis B. Mayhew, is of particular interest. "These new institutions demonstrate several new or renewed trends in higher education. First they generally reflect a desire on the part of educators to capture some of the educational potential of small colleges without yielding the undoubted virtue of large size. Thus Monteith, New College at Hofstra, Santa Cruz, the University of the Pacific, and Michigan State have all been attracted to the college-within-a-college concept. And this appears to be no passing fad. Several of the largest universities . . . are exploring ways of subdividing enormous enrollments, especially in colleges of liberal arts and business, to ensure close relations between students and faculty. A few schools with commuting students are also searching for ways to regroup students more effectively."

Royce Pitkin and George Beecher discuss, "Extending the Educational Environment: The Community as a Resource for Learning." They say: "The ways of evaluating the work of the student must change. The teacher will discover much about the student as a fieldworker that he might never notice or care about in class or know from reading his papers and examinations. And the teacher will see that the student is discovering much about himself that he would not find out sitting at a desk."

Other relevant chapters are: "Organizing for Teaching Learning: The Curriculum," Earl J. McGrath and L. Richard Meeth; "The Student on his Own: Independent Study," Bruce Dearing; "The Student Abroad," Irwin Abrams; "The Abler Student," Maxwell H. Goldberg and Norman D. Kurland; "Providing the Conditions for Learning: The 'New' Media," C. R. Carpenter and L. P. Greenhill; "Facilities and Learning: An Overview of Developments," Francis H. Horn and Jonathan King; and "The Campus Climate," Janice G. Rice.

3. Becker, Howard S., Blanche Geer, Everett C. Hughes, and Anselm L. Strauss, Boys in White: Student Culture in Medical School. Chicago, University of Chicago Press, 1961. 456 p.

This book illuminates the processes which turn medical students into medical doctors. "In becoming medical students, the boys enter upon one of the longest rites of passages in our part of the world. A rite of passage is that series of instructions, ceremonies, and ordeals by which those already in a special status initiate neophytes into their charmed circle, by which men turn boys into fellow men, fit to be their own companions and successors . . . . A prolonged professional training is part of the experience of a large and increasing number of young people in our society, young people who are--physically and in most social respects--fully adult . . . . Our social and technical order requires more and more services which depend upon esoteric knowledge and skills; so esoteric, in fact, that each of us--no matter how skilled and full of knowledge in his own specialty--must accept them on trust" (p. 4-5).

Boys in White draws heavily upon sociological theory. The use of technical terms and language is minimal, however, and the book is very readable.

4. Clark, Burton R., Educating the Expert Society. San Francisco, Chandler, 1962. 301 p.

"This book is a study in the sociology of education . . . about some connections between education and society and the nature of the educational institution today." Included are two especially relevant chapters, "Student Culture in College" and "Student Culture in High School." In "Student Culture in College," Clark distinguishes four major types of student subcultures: the collegiate world of carefree fun and school spirit; the academic world of serious study, whose members emulate their teachers and are often preparing for postgraduate work and academic or professional careers; the world of the vocationally oriented student, whose members are training for specific jobs; and the nonconformist worlds of campus radicals, aesthetes, and bohemians.

5. Freedman, Mervin B., "Impact of College." New Dimensions in Higher Education, No. 4. Washington, U. S. Office of Education, 1960. 27 p.

This monograph summarizes empirical researches concerned with personality development in the college years through 1960. The content is classified as follows: "A Brief History of Research in the Social Sciences and Higher Education"; "The Characteristics of the Entering Student";"Changes in Mental Ability, Skills, and Knowledge"; "Changes in Attitudes and Values"; "Changes in Personality"; "Student Culture and Society"; and "Characteristics of Faculty and Teaching."

A bibliography of 78 items makes this monograph useful as a resource for references.

6. Goldsen, Rose K., Morris Rosenberg, Robin M. Williams, Jr., and Edward A. Suchman, What College Students Think. Princeton, N. J., D. Van Nostrand, 1960. 240 p.

This book reports the responses to questionnaires of large samples of American college students. Attitudes toward college education, choosing a career, fraternities and sororities, love, marriage, and sex, politics, international relations, and religion were studied. The following passage gives the flavor of the book:

> Chapters 7 and 8 analyze what the students told us about some of the elements of their religious and ethical beliefs. They are, they say, virtually all believers. Yet we find no support for any contention that the campuses are seeing a revival of religion. On the contrary, we find a relative absence of commitment and identification with religion. In religion, as in politics, the students "play it cool." The content of their beliefs is decidedly away from orthodoxy; as we analyze their testimony, it would appear that individualistic and relativistic approaches to religion are characteristic. Most students are agreed on the importance of religious values which appear to repre-

sent some least common denominator of personal religious and ethical belief. Yet when we trace some of the links between religious belief and social attitudes, we find certain patterns of thought which suggest that religious belief, for many students, seems to be engaged in the service of their psychological quest for certainty--a quest which is also linked to rigidities and intolerances in secular matters" (p. xxiii-xxiv).

7. Mayhew, Lewis B., "The Literature of Higher Education, 1965." Educational Record, p. 18-49. Winter, 1966.

This article is a comprehensive survey of books concerned with higher education that were published in 1964 and 1965. The bibliography consists of 86 references.

8. Murphy, Lois B., and Esther Raushenbush, Achievement in the College Years: A Record of Intellectual and Personal Growth. New York, Harper and Bros., 1960. 240 p.

"This book is the result of research carried on through the four years of a college generation, and about two years beyond. It grew out of an effort to understand the development of young people in a favored and familiar setting--a liberal arts college." The college is Sarah Lawrence. "Among these students are some of the most gifted ones . . . . Other types of students have been identified and described in this book: the ones who first become aware of what learning means when they reach college, and who take long, sudden strides; the ones who take a long time to grow up and work well; those who function by fits and starts; and some who seem unable to make anything important of their work or their life in college, although they pass all their courses . . . . Following these students through college, we have tried to discover what connections seem to exist between academic accomplishment and personality traits; what kind of general personal growth seems to accompany particular intellectual qualities and intellectual development in college; what kind of growth takes place during the college years" (p. vii-x).

This book is extremely well-written and makes very pleasant reading.

9. Sanford, Nevitt, ed., The American College: A Psychological and Social Interpretation of the Higher Learning. New York, Wiley, 1962. 1084 p.

This massive book will probably serve as the major reference work for research in higher education for some time to come--a decade or more. Parts of the book are technical. Some sophistication in the social sciences is required of the reader. Other sections are more general and may be appreciated by educators who are not trained in techniques of the social sciences, by students, and by the intelligent layman. This is not a book one is likely to read from cover to cover. Rather, one is likely to consult various sections or chapters as interest or research need dictates. Some chapters are highly empirical in tone. Others are more theoretical and speculative.

Chapters which are particularly relevant to this monograph are: "Higher Education as a Field of Study," Nevitt Sanford; "The Viability of the American College," David Riesman and Christopher Jencks; "Motivational Factors in College Entrance," Elizabeth Douvan and Carol Kaye; "The Diverse College Student Population," T. R. McConnell and Paul Heist; "Developmental Status of the Entering Freshman," Nevitt Sanford; "The Curriculum in the Perspective of the Theory of Personality Development," Joseph Katz and Nevitt Sanford; "Student Peer-Group Influence," Theodore M. Newcomb; "Student Culture at Vassar," John H. Bushnell; "Student Culture and Academic Effort," Everett Hughes, Howard Becker, and Blanche Geer; "Personality, College Environment, and Academic Productivity," Donald Brown; "Fields of Study and the People in Them," Carl Bereiter and Mervin Freedman; "Students and the Occupational World," David Beardslee and Donald O'Dowd; "Dropouts from College," John Summerskill; "Some Social-Psychological Theory for Selecting and Guiding College Students," Joshua A. Fishman; "Environments for Learning," George G. Stern; "Patterns of Residential Education: A Case Study of Harvard," Christopher Jencks and David Riesman; "Freedom and Authority on the Campus," Harold Taylor; "Personality Changes in College Students," Harold Webster, Mervin Freedman, and Paul Heist; "Studies of College Alumni," Mervin Freedman; and "Research and Policy in Higher Education," Nevitt Sanford.

10. Sanford, Nevitt, ed., College and Character. New York, Wiley, 1964. 308 p.

This book is "a brief version of The American College." Technical writing of the kind social scientists direct at other social scientists rather than the general reader, descriptions of samples and techniques of measurement, for example, are omitted from this book. College and Character is therefore much easier reading than The American College. Its 308 pages will give a reader considerable familiarity with research in higher education and with correlative psychological and sociological theory. Research workers will, of course, find the greater detail of The American College to be of more value to them. College and Character contains a new chapter, "Conclusions and Proposals for Change," which was written by Nevitt Sanford for the new volume. "Conclusions and Proposals for Change" contains many cogent observations concerning institutional arrangements which may facilitate intellectual development in students and which may promote a sense of community. Sanford, for example, discourses on the functions of fraternities and sororities and suggests that seniors be used to help teach lower-classmen.

11. Sanford, Nevitt, Self and Society: Social Change and Individual Development. New York, Atherton, 1966. 381 p.

Although it is primarily a psychological work, attention to higher education is a prominent feature of Self and Society. The most profound theory concerned with the relationship between the development of students and the institutional workings of colleges and universities is to be found in this book. The reader's attention is directed particularly to the chapter entitled, "Personality Development in a Change-Promoting Institution." The observations contained in the following paragraphs of this chapter are particularly cogent.

> Just how much have these systems developed by the time a student enters college? What are his particular susceptibilities and his particular strengths? First, he is a late adolescent; some of the major adolescent conflicts are over. He has attained some mastery of his impulses, so that he is able to act as if he were a more or less grown-up person. But typically he has accomplished this mastery by accepting very fully the value orientation of his family and immediate community. Indeed, he usually adheres too rigidly to these values, acting as if he were already grown-up and as if no foolish indulgence would ever cross his mind. Of course, impulses for foolish indulgences are still there and express themselves from time to time when he cannot help it. Consequently, the freshman is susceptible to feelings of guilt over betraying the values of his family while at the same time being plunged into a situation in which many people are trying to persuade him to betray them. Fellow students suggest behavior that would never receive family approval. At the level of beliefs and ideology, the faculty does the same thing, challenging the belief system that his family has taught him is the only one worth holding.

> If the freshman is to be educated, the value orientation with which he arrives must be challenged. Should this freshman have a neurotic necessity to adhere strongly to his parents, he is highly susceptible to trouble. He faces a difficult choice: to remain loyal to his traditional values, making true education impossible, or to make a painful break with them. If he dares to make this break, he will probably need a good deal of support from the faculty, fellow students, and the whole educational community.

12. Select Committee on Education, University of California, Berkeley Academic Senate, Education at Berkeley. Berkeley, Calif., University of California, 1966. 228 p.

This book is the outcome of a massive study of the Berkeley campus of the University of California. Considerable educational experimentation and innovation are suggested. For example, a new degree, the Doctor of Arts, is proposed. It is intended for people who are interested in college teaching. The curriculum for this degree would place less stress upon research as compared to the customary Ph.D. Pass-fail options for students in some courses in lieu of letter grades are recommended. Credit for field-work is suggested. Generally, greater attention to the views of students is commended to the faculty and administration of the University.

Among the chapters are: "The Berkeley Students," "The Improvement of Teaching," "Freshman Admissions," "Advising and Orientation of Students in Letters and Science," "Grading," "A Board of Educational Development," and "New Programs."

13. The Study of Campus Cultures. Boulder, Colo., Western Interstate Commission for Higher Education, Center for the Study of Higher Education of the University of California (Berkeley), and Committee on Personality Development in Youth of the Social Science Research Council, 1963. 189 p.

Among the chapters are: "The Study of Campus Cultures," Ralph W. Tyler; "Student Culture," Howard S. Becker; "Student Stress," Benson R. Snyder; "Faculty Culture," Burton R. Clark; "Interactions Among Academic, Administrative, and Student Subcultures," C. Robert Pace; "Administering Studies of Campus Cultures," Theodore M. Newcomb; "Administrative Implications of Analyses of Campus Culture," Martin A. Trow; "Studying Students in Britain and America: Contrasting Approaches to Comparable Problems," Jean Floud; "Campus Culture and the Cultured Campus," Jonathan King; and "The

English Idea of a University," A. H. Halsey.

A quotation from Trow's chapter indicates the importance of campus culture. "Not all of these sub-cultures are represented on every campus; and where they do exist they are found in very different strengths and have a very different impact both on their members and on non-members. The importance of these sub-cultures is that they comprise a major part of a student's college environment. The kind of sub-culture a student identifies with shapes the kinds of people he spends his time with, and the kinds of values and attitudes to which he is exposed, or indeed subjected. We cannot fully understand a college and its influence on different kinds of students without taking these subcultures into account."

14. Western College Association, The Intellectual Climate of the Liberal Arts College. Claremont, Calif., The Claremont College, 1963. 72 p.

This monograph contains a series of informative and witty papers. They are: "The Liberal Arts Program in the Specialized Institution," Andreas S. Andersen; "The Intellectual Climate of the Liberal Arts College," Pressley C. McCoy; "One Cheer for Excellence," Nevitt Sanford; and "How the College Influences Character," Edward D. Eddy, Jr.

REACTIONS

In order for this second series of "New Dimensions in Higher Education" to better serve the needs of colleges and universities throughout the nation, reader reaction is herewith being sought. In this instance, with respect to *The Student and Campus Climates of Learning*, the following questions are asked:

1. Can you suggest other completed research, the results of which would add significantly to this report?

2. What problems related to this subject should be given the highest priority, in terms of further research?

3. What are the implications of this review of research for your own institution?

5. What suggestions, if any, do you have for the United States Office of Education with respect to further support of research and development activities in relation to this subject?

Kindly address reactions to:

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